# CLAIMS

We claim:

1. A system for chopping rope of cellulose fibers into fragments, comprising,
a spool having rope coiled thereon, the spool being fixedly disposed on a rotatable shaft, the rope having a diameter in the range from 3.175 mm (0.125") to 19.05 mm (0.75");
a variable speed drive means drivingly engaged with the shaft to rotate it at a chosen number of revolutions per unit time;
a variable speed feeder-pulley over which the rope is trained in non-slipping engagement therewith;
control means to control the revolutions per minute of the feeder-pulley within a predetermined range;
a train of pulleys over each of which the rope is engaged, the pulleys disposed intermediate the shaft and the feeder-pulley, the train including a dancing roll movable between upper and lower limits;
limit switch means to sense the upper and lower limits of travel of the dancing roll;
an inline granulator having a bed blade adjustable to provide a cutting clearance of no more than 25.4 μm (0.001") and associated blades revolving at a speed in the range from about 1200 – 1800 revs/min; and,
a screen means having openings no larger than 6.35 mm (0.25").

2. The system of claim 1 wherein the cutting clearance is no more than 12.7 μm (0.0005") and the openings in the screen are no larger than 3.18 mm (0.125") and more than 90% by weight of sieved fibers are in the range from about 2 μm to 700 μm (27.5 mils).

3. The system of claim 1 wherein the dancing roll is movable between at least an extreme upper limit switch and an extreme lower limit switch, and each switch is operatively connected to a control unit adapted to control the speed of rotation of the shaft.

4. The system of claim 3 wherein the dancing roll is additionally movable between an intermediate upper limit switch and an intermediate lower limit switch, and each switch is operatively connected to the control unit adapted to control the speed of rotation of the shaft.

5. The system of claim 1 including a conduit in open fluid communication with the granulator's discharge the conduit having an air jet means therein to generate a vacuum at the discharge of the granulator; and,
a micronizer having an intake in open fluid communication with the conduit.

6. A method for chopping rope made of cellulose fibers into fragments smaller than 6.35 mm (0.25"), comprises,
rotatably mounting a spool on a shaft for rotation about a transverse axis in a generally horizontal plane, to enable rope which is coiled on the spool to be uncoiled in a generally longitudinal direction;
training the rope over a feeder-pulley adapted to frictionally engage the rope in non-slipping engagement therewith, the feeder-pulley being mounted for rotation about a transverse axis in a horizontal plane;
controlling the rotational speed of the feeder-pulley;
training the rope over a train of pulleys positioned between the shaft and the feeder-pulley, the train including a dancing roll movable between at least two limit switches, one upper and one lower;
controlling the speed of rotation of the shaft with a control means responsive to the upper and lower limit switches;
feeding the rope into an inline granulator having a bed blade adjustable to provide a cutting clearance no larger than 25.4 μm (0.001") with associated blades revolving at from about 1200 to 1800 revs/min; and,
fitting the granulator with a screen having openings no larger than 6.35 mm.

7. The method of claim 6 including sensing movement of the dancing roll at an intermediate upper limit switch and an intermediate lower limit switch, and adjusting the cutting clearance to be no larger than 12.7 μm (0.0005").

8. The method of claim 7 including adjusting the cutting clearance to be no larger than 6.35 μm (0.00025").

9. The method of claim 6 including exerting a vacuum at the granulator's discharge, and directly flowing the fragments to a micronizer